

AMENDMENTS TO THE CLAIMS

- At time of the Action: Claims 1-54
- Amended Claims: Claims 1, 3, 10, 12-14, 16, 18, 19, 21, 23, 25-27, 30, 31, 40, 42, 46, 53, and 54
- Canceled Claims: Claims 9, 11, 17, 20, 28, 29, 39, 41, 43, 44, 47, and 50
- New Claims: Claim 55
- After this Response: Claims 1-8, 10, 12-16, 18, 19, 21-27, 30-38, 40, 42, 45, 46, 48-49, and 51-55

The following listing of claims replaces all prior versions and listings of claims in the application.

1. (Currently Amended) A method of signing a supplemental television content application comprising files, the method comprising:

identifying at least a first portion of the files in at least one cluster;

determining a cluster signature for each cluster; and

developing an expression that includes the location of the signature,

wherein a second portion of the files comprises a web page and determining a signature for each web page by determining at least one of:

developing a link to the signature and storing the link in the web page, or

storing the signature in the web page.

2. (Original) The method of claim 1 wherein said signature for each cluster is based on a hash code of the files composing the cluster.

3. (Currently Amended) The method of claim 1 wherein the application comprises a start file and storing the expression in the start file, wherein the start file is a file that describes parameters to execute an associated application.
4. (Original) The method of claim 1 wherein the application comprises a start file and further comprising storing a link to the expression in the start file.
5. (Original) The method of claim 1 further comprising storing at least one of delegate information, security policy information, time version information, and file identification information for each cluster in the expression.
6. (Original) The method of claim 1 further comprising storing the cluster signature in a signature file, developing a reference to the files composing the cluster, and storing the reference to the files in the signature file.
7. (Original) The method of claim 1 further comprising storing the cluster signature in a signature file, developing a time version record for the cluster, and storing the time version record in the signature file.
8. (Original) The method of claim 1 further comprising developing at least one of a reference to the files composing the cluster, and a time version record for the cluster.
9. (Canceled)

10. (Currently Amended) The method of claim 1 9 wherein the web pages is at least one of a markup language based application and dynamically created by a client.

11. (Canceled)

12. (Currently Amended) A method of signing a supplemental television content application comprising files, the method comprising:

identifying a first portion of the files that together compose a web page;

determining a signature for the web page;~~and~~

storing one of a link to the signature in the web page, or the signature in the web page;

and

developing an expression that includes signature information, wherein the expression is stored in the web page as metadata;

wherein the expression comprises at least one of security policy information data or delegate data;

wherein the delegate data includes identities and constraints of a delegate; and

wherein the delegate is an entity that is authorized to sign portions of the application in addition to a main signer.

13. (Currently Amended) The method of claim 12 wherein,

the metadata is extensible markup language (XML),

a syntactical extension of an XML link element provides reverse linkage between an XML document and the signature, and

the signature is composed of a Reference element, a KeyInfo element, a DigestValue element, a SignatureValue element, and a VersionNumber element, wherein the VersionNumber element provides versions for signature files under a separate namespace, using a SignatureProperties element, further comprising developing an expression that includes signature information, and storing the expression in the web page.

14. (Currently Amended) The method of claim 12 wherein the security policy information data comprises at least one of specifying a location of a permission request file that indicates allowed and disallowed operations for the application or defining a location of a privacy statement. ~~+3 wherein the expression comprises at least one of security policy information data, and delegate data.~~

15. (Original) The method of claim 12 further comprising:

- clustering at least a second portion of the files in at least one cluster;
- determining a cluster signature for each cluster; and
- developing an expression that includes indicating the location of the clusters.

16. (Currently Amended) A method of executing a supplemental television content application that comprises files, the method comprising:

determining if any of the files are arranged in a cluster, wherein a cluster is a subset of the files grouped through logical organization, and determining if the files are arranged in clusters comprises:

- determining if an application start file has a record that includes one of a reference to an expression having a location of the signature, or the expression, wherein the start

file is a file that describes parameters to execute an associated application;

reading from the expression the location of a file having a signature of a cluster for each cluster, wherein the reading operation further comprises reading whether there are delegates for the clusters, and determining if a signature is valid based on a delegate wherein the delegate is an entity that is authorized to sign portions of the application in addition to a main signer;

determining if the signature can be verified;

determining the identity of clusters that comprise the application;

for each cluster, determining the location of the signature of the cluster by a signature location metadata expression;

determining the files that compose the cluster by a cluster information metadata expression;

determining a delegate name and constraints imposed on an authority of the delegate, wherein the constraints comprise time boundaries; and

verifying the integrity of the files in the cluster by operations including verifying the signature.

17. (Canceled)

18. (Currently Amended) The method of claim 16 ~~47~~ wherein each of the files composing a cluster is stored in one of the expression, and a file storing a signature.

19. (Currently Amended) The method of claim 16 ~~47~~ wherein each signature is based on a hash of each file composing the cluster.

20. (Canceled)

21. (Currently Amended) The method of claim ~~16~~ 47 further comprising reading time version information associated with a cluster and determining if the signature may be valid based on the time version information.

22. (Currently Amended) The method of claim 16 further comprising determining if ~~any of~~ the files is a web page file having one of a link to a signature and a signature; reading the signature, and verifying the signature.

23. (Currently Amended) A method of executing a supplemental television content application comprising files, the method comprising:

determining if ~~any~~ the files compose web pages; and

if ~~any of~~ the files compose web pages, then

for each of the web pages,

decoding the web page to determine if the web page has one of a link to a

digital signature and a digital signature,

reading the signature, and

verifying the signature,

if at least one if the web pages lack the link to a digital signature, lack the digital signature, or the signature is not verified then performing at least one of warning a user that a file has not been signed, warning the user that the signature is not valid, rejecting the file, or restricting access by the web page to system resources.

24. (Currently Amended) The method of claim 23 further comprising:

determining if ~~any of~~ the files are arranged in a cluster;

for each cluster, determining the files that compose the cluster and the location of the signature of the cluster;

verifying the integrity of the files in the cluster by operations including verifying the signature.

25. (Currently Amended) A supplemental television content architecture comprising:

an application comprising a collection of files;

a cluster of the files, wherein the cluster is a subset of the files grouped through a logical organization,

the files comprising:

a signature file comprising a cluster signature, a reference to the cluster, and a time version information;

a security information resource file comprising a cluster information metadata, a signature location metadata, and a delegate metadata; and

a start file including a link to the security information resource file or the security information file,

wherein the signature location metadata describes a location of the signature file by a link,

wherein the cluster signature includes a hash code of each of the files comprising the cluster and a digital signature for signing the hash code of each of the files,

wherein the time version information describes the version of the signature file as a function of the files in the cluster, and

wherein the delegate metadata comprises identity and constraints of a delegate, at least one of:

- (a) ~~an at least one signature file having a signature of at least a portion of said application files detached from said application files; and a start file having one of an expression having a link to each signature file, and a link to an expression having a link to each signature file; and~~
- (b) ~~an at least one web page comprising at least a portion of said application files and each web page coded with one of an signature and a link to the signature.~~

26. (Currently Amended) The architecture of claim 25 wherein the security information resource file further comprises a policy declaration that specifies a location of a permission request file which indicates allowed and disallowed operations for the application and a policy declaration that defines the location of a privacy statement. ~~expression further has cluster information.~~

27. (Currently Amended) The architecture of claim 25 wherein the signature is composed of a Reference element, a KeyInfo element, a DigestValue element, a SignatureValue element, and a VersionNumber element, wherein the VersionNumber element provides versions for signature files under a separate namespace, using a SignatureProperties element. ~~expression further has at least one of delegate information and security policy information.~~

28. (Canceled)

29. (Canceled)

30. (Currently Amended) The architecture of claim 25 ~~29~~ wherein the metadata expression comprises at least one of security policy information and signature delegate information.

31. (Currently Amended) One or more computer readable media having stored thereon a plurality of instructions that, when executed by at least one processor, causes the processor to perform acts comprising:

identifying at least a first portion of supplemental television content application files in at least one cluster;

determining a cluster signature for each cluster; and

developing an expression that includes the location of the signature, wherein a second portion of the files comprises a web page and further comprising determining a signature for each web page by determining at least one of:

developing a link to the signature and storing the link in the web page; or

storing the signature in the web page.

32. (Original) The computer readable media of claim 31 wherein the signature for each cluster is based on a hash code of the files composing the cluster.

33. (Original) The computer readable media of claim 31 wherein the application comprises a start file and said acts further comprise storing the expression in the start file.

34. (Original) The computer readable media of claim 31 wherein the application comprises a start file and said acts further comprise storing a link to the expression in the start file.

35. (Original) The computer readable media of claim 31 wherein the expression further includes at least one of delegate information, security policy information, time version information, and file identification information for each cluster.

36. (Original) The computer readable media of claim 31 wherein said acts further comprises storing the cluster signature in a signature file, developing a reference to the files composing the cluster, and storing the reference to the files in the signature file.

37. (Original) The computer readable media of claim 31 wherein said acts further comprise storing the cluster signature in a signature file, developing a time version record for the cluster, and storing the time version record in the signature file.

38. (Original) The computer readable media of claim 31 wherein said acts further comprise developing at least one of a reference to the files composing the cluster, and a time version record for the cluster.

39. (Canceled)

40. (Currently Amended) The computer readable media of claim 31 ~~39~~ wherein the web pages is at least one of a markup language based application and dynamically created by a client.

41. (Canceled)

42. (Currently Amended) One or more computer readable media having stored thereon a plurality of instructions that, when executed by at least one processor, causes the processor to perform acts comprising:

identifying a first portion of supplemental television content application file that together compose a web page;

determining a signature for the web page;~~and~~

storing one of a link to the signature in the web page, or the signature in the web page;

and

developing an expression that includes signature information, wherein the expression is stored in the web page as metadata,

wherein the expression comprises at least one of security policy information data or delegate data,

wherein the delegate data includes identities and constraints of a delegate, and wherein the delegate is an entity that is authorized to sign portions of an application in addition to a main signer.

43. (Canceled)

44. (Canceled)

45. (Original) The computer readable media of claim 42 wherein said acts further comprise:

clustering at least a second portion of the files in at least one cluster;

determining a cluster signature for each cluster; and

developing an expression that includes indicating the location of the clusters.

46. (Currently Amended) One or more computer readable media having stored thereon a plurality of instructions that, when executed by at least one processor, causes the processor to perform acts comprising:

determining if ~~any~~ supplemental television content application files are arranged in a cluster[:.], wherein a cluster is a subset of the files grouped through logical organization, and determining if the files are arranged in clusters comprises:

determining if an application start file has a record that includes one of a reference to an expression having a location of the signature, and the expression, wherein the start file is a file that describes parameters to execute an associated application;

reading from the expression the location of a file having a signature of a cluster for each cluster, wherein the reading operation further comprises reading whether there are delegates for the clusters, and determining if a signature is valid based on the delegates wherein a delegate is an entity that is authorized to sign portions of the application in addition to a main signer;

determining if the signatures can be verified;

determining the identify of clusters that comprise the application;

for each cluster,

determining the location of the signature of the cluster files that compose the cluster by a signature location metadata expression;

determining the files that compose the cluster by a cluster information metadata expression;

determining a delegate name and constraints imposed on an authority of the delegate, wherein the constraints comprise time boundaries; and

verifying the integrity of the files in the cluster by operations including verifying the signature.

47. (Canceled)

48. (Original) The computer readable media of claim 47 wherein each of the files composing a cluster is stored in one of

the expression, and

a file storing a signature.

49. (Original) The computer readable media of claim 47 wherein each signature is based on a hash of each file composing the cluster.

50. (Canceled)

51. (Original) The computer readable media of claim 47 further comprising reading time version information associated with a cluster and determining if the signature may be valid based on the time version information.

52. (Original) The computer readable media of claim 46 wherein said acts further comprise determining if ~~any of~~ the files is a web page file having one of a link to a signature and a signature; reading the signature, and verifying the signature.

53. (Currently Amended) One or more computer readable media having stored thereon a plurality of instructions that, when executed by at least one processor, causes the processor to perform acts comprising:

determining if ~~any~~ supplemental television content application files compose web pages;
and

if ~~any of~~ the files compose web pages, then

for each of the web pages, decoding the web page file to determine if the web page has one of a link to a digital signature and a digital signature,

reading the signature, and

verifying the signature,

if at least one of the web pages lack the link to a digital signature, lack the digital signature, or the signature is not verified then performing at least one of warning a user that a file has not been signed, warning the user that the signature is not valid, rejecting the file, or restricting access by the web page to system resources.

54. (Currently Amended) The computer readable media of claim 53 ~~57~~, the acts further comprising:

determining if ~~any of~~ the files are arranged in a cluster;

for each cluster, determining the files that compose the cluster and the location of the signature of the cluster;

verifying the integrity of the files in the cluster by operations including verifying the signature.

55. (New) A supplemental television content architecture comprising:

an application comprising a collection of files;

the files comprising:

at least one of a web page coded with a signature as metadata or including a link to a signature file coded with the signature; and

a web page coded with a security information resource file comprising a signature location metadata, and a delegate metadata,

wherein the signature changes as the web page changes,

wherein the delegate metadata comprises an identity and constraints of a delegate.